

DESIGN LOADING: ALL NEW AND REHABILITATED BRIDGES SHALL BE DESIGNED FOR HS-20 LOADING.

FOR NEW ROUTE CONSTRUCTION OR ROUTE RECONSTRUCTION PROJECTS:

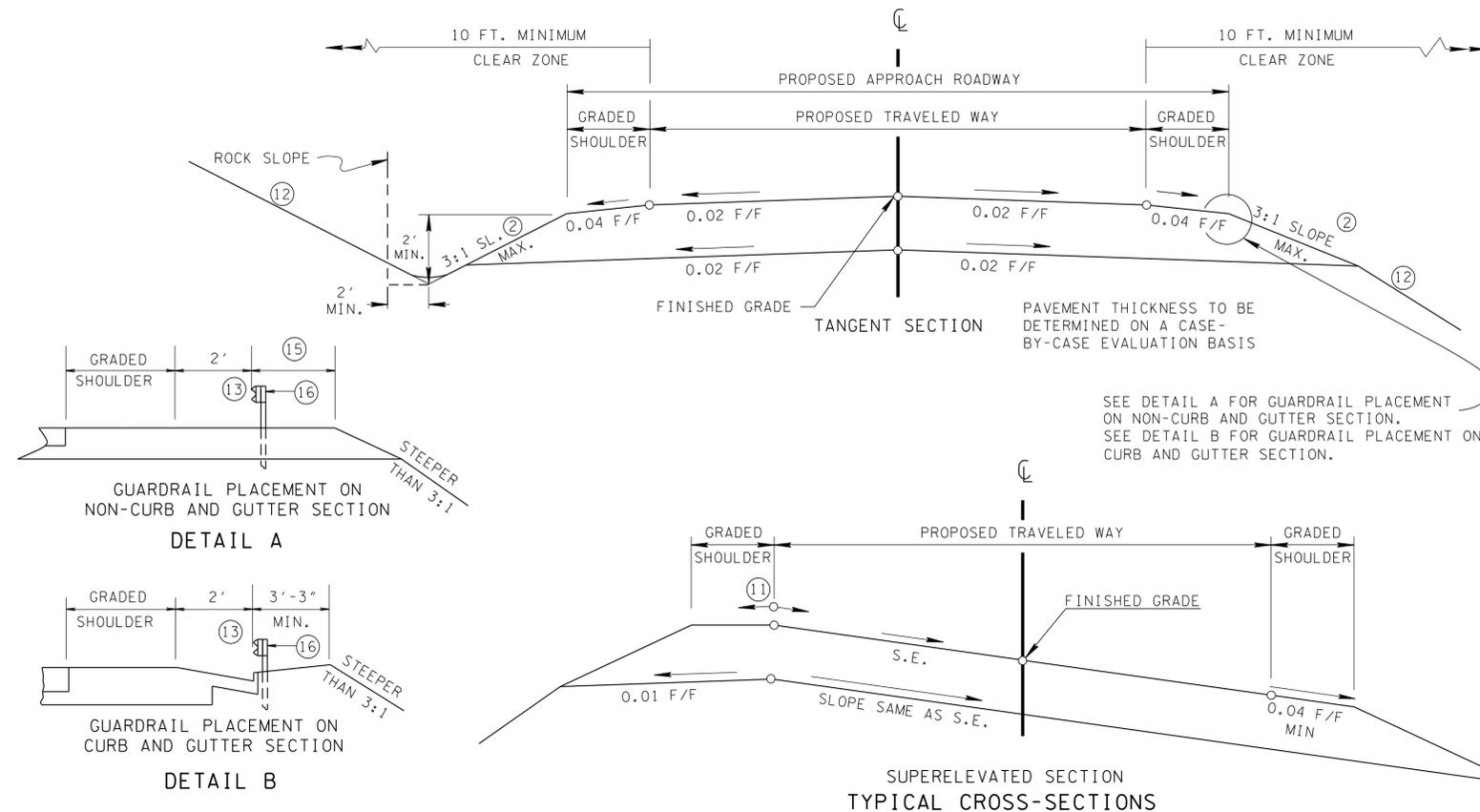
THE MINIMUM CLEAR WIDTH FOR NEW BRIDGES SHALL BE EQUAL TO THE FULL WIDTH OF THE APPROACH ROADWAY (CURB-TO-CURB OR FULL SHOULDER WIDTH AS APPLICABLE).

① CLEAR ROADWAY WIDTHS FOR BRIDGE REPLACEMENT AND REHABILITATION PROJECTS (PAGE 427, TABLE V-9)		
DHV	CURRENT ADT	MINIMUM CLEAR ROADWAY WIDTH OF BRIDGE
	400 AND UNDER	TRAVELED WAY + 4 FT. (2 FT. EACH SIDE)
UNDER 400	OVER 400	TRAVELED WAY + 6 FT. (3 FT. EACH SIDE)
400 OR GREATER		APPROACH ROADWAY WIDTH

③ MINIMUM STRUCTURAL CAPACITIES AND MINIMUM ROADWAY WIDTHS FOR EXISTING BRIDGES TO REMAIN IN PLACE (PAGE 428, TABLE V-10)			
DHV	CURRENT ADT	DESIGN LOADING (STRUCTURAL CAPACITY)	④ ROADWAY CLEAR WIDTH (FEET)
	0-50	H-10	20
	51-250	H-15	20
100-200	250+	H-15	22
200-400		H-15	24
OVER 400		H-15	28

⑤ MINIMUM RURAL DESIGN SPEEDS	CURRENT ADT UNDER 50	CURRENT ADT 50-250	CURRENT ADT 250-400	CURRENT ADT 400 AND OVER	DHV 100-200	DHV OVER 200
LEVEL TOPO	30	30	40	50	50	50
ROLLING TOPO	⑥ 20	30	30	40	40	40
MOUNTAINOUS TOPO	⑥ 20	⑥ 20	⑥ 20	30	30	30

DESIGN STANDARDS (FOR GIVEN DESIGN SPEED)		DESIGN SPEEDS (MPH)						
		20	30	40	50	60		
⑦ MINIMUM AND DESIRABLE WIDTH OF TRAVELED WAY IN RURAL AREAS (FEET)	MINIMUM	18	18	20	20	20	2	
	DESIRABLE	22	22	22	22	22		
	CURRENT ADT 250-400	MINIMUM	20	20	20	20	22	2
		DESIRABLE	22	22	22	22	22	
	CURRENT ADT OVER 400	MINIMUM	⑭ 20	⑭ 20	⑭ 22	22	22	⑭ 4
		DESIRABLE	22	22	22	22	24	
DHV 100-200	MINIMUM	20	20	22	22	22	6	
	DESIRABLE	22	22	22	22	24		
DHV 200-400	MINIMUM	22	22	22	24	24	6	
	DESIRABLE	22	22	22	24	24		
DHV 400 AND OVER	MINIMUM	24	24	24	24	24	8	
	DESIRABLE	24	24	24	24	24		
MAXIMUM CURVATURE (DEGREES) 0.04 MAX. S.E.		45°00'	19°00'	10°00'	6°00'	3°45'		
MAXIMUM CURVATURE (DEGREES) 0.06 MAX. S.E.		49°15'	21°00'	11°15'	6°45'	4°15'		
MAXIMUM CURVATURE (DEGREES) 0.08 MAX. S.E.		53°30'	22°45'	12°15'	7°30'	4°45'		
MAXIMUM CURVATURE (DEGREES) 0.10 MAX. S.E.		58°00'	24°45'	13°15'	8°15'	5°15'		
⑧ MAXIMUM RURAL GRADES %	LEVEL TOPO		7	7	6	5		
	ROLLING TOPO	11	10	9	8	6		
	MOUNTAINOUS TOPO	16	14	12	10			
⑩ MINIMUM STOPPING SIGHT DISTANCE (FEET)		125	200	275-325	400-475	525-650		
⑨ MINIMUM "K" VALUE (PAGE 421; TABLE V-2)	CREST VERTICAL CURVE	10	30	60-80	110-160	190-310		
	SAG VERTICAL CURVE	20	40	60-70	90-110	120-160		
PASSING SIGHT DISTANCE (FEET) (PAGE 422, TABLE V-3)		800	1100	1500	1800	2100		
⑨ MINIMUM "K" VALUE FOR CREST VERTICAL CURVE		210	400	730	1050	1430		
SUPERELEVATION		SEE STANDARD DRAWINGS RD-SE-2 & RD-SE-3						



⑦ MINIMUM WIDTH OF GRADED SHOULDERS FOR ALL SPEEDS (FEET)

- FOOTNOTES**
- IF AN EXISTING APPROACH ROADWAY WIDTH IS GREATER THAN THE MINIMUM WIDTH DERIVED FROM THIS TABLE, THE NEW BRIDGE SHALL HAVE A CLEAR WIDTH EQUAL TO THE EXISTING APPROACH WIDTH OR THE WIDTH AS DETERMINED FROM THE DESIGN STANDARDS TABLE ON THIS SHEET, WHICHEVER IS LESS.
 - 4:1 FOR 40 MILES PER HOUR OR GREATER WITH A DHV OF 100 OR GREATER.
 - THESE STRUCTURES SHOULD BE ANALYZED INDIVIDUALLY, TAKING INTO CONSIDERATION THE CLEAR WIDTH PROVIDED, TRAFFIC VOLUMES, REMAINING LIFE OF THE STRUCTURE, PEDESTRIAN VOLUMES, SNOW STORAGE, DESIGN SPEED, ACCIDENT RECORD, AND OTHER PERTINENT FACTORS.
 - CLEAR WIDTH BETWEEN CURBS OR RAILS, WHICHEVER IS LESS, MINIMUM CLEAR WIDTHS UP TO TWO FEET NARROWER MAY BE USED ON ROADS WITH FEW TRUCKS. IN NO CASE SHALL THE MINIMUM CLEAR WIDTH BE LESS THAN THE APPROACH TRAVELED WAY WIDTH.
 - RURAL PAGE 421, TABLE V-1. FOR URBAN DESIGN SEE PAGE 434.
 - USE OF 20 MILES PER HOUR DESIGN SPEED ON RURAL ROADS IS NOT DESIRABLE AND EFFORTS SHOULD BE MADE TO AVOID ITS USE.
 - RURAL PAGE 426, TABLE V-8. FOR URBAN DESIGN SEE PAGE 436-437.
 - RURAL PAGE 423, TABLE V-4. FOR URBAN DESIGN SEE PAGE 435.
 - "K" VALUE IS A COEFFICIENT BY WHICH THE ALGEBRAIC DIFFERENCE IN GRADE MAY BE MULTIPLIED TO DETERMINE THE LENGTH IN FEET OF THE VERTICAL CURVE.
 - ANY LENGTH OF STOPPING SIGHT DISTANCE WITHIN THE RANGE OF VALUES ESTABLISHED ON PAGE 421, TABLE V-2, IS ACCEPTABLE FOR A SPECIFIC SPEED. HOWEVER, VALUES APPROACHING OR EXCEEDING THE UPPER LIMIT OF THE RANGE SHOULD BE USED AS THE BASIS FOR DESIGN WHEREVER CONDITIONS PERMIT.
 - THE SLOPES OF THE SHOULDER AND ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07 FOOT PER FOOT.
 - SEE STANDARD DRAWING RD-S-11 (CASE 11) FOR DESIRABLE SLOPES & NOTE REGARDING GEOLOGICAL RECOMMENDATIONS.
 - FOR LESS THAN 100 DHV OR ON BRIDGE REPLACEMENT AND REHABILITATION PROJECTS 2 FOOT OFFSET TO FACE OF GUARDRAIL AND/OR FACE OF CURB MAY BE ELIMINATED.
 - IN MOUNTAINOUS TERRAIN OR SECTIONS WITH HEAVY EARTHWORK WHEN THE ADT IS BETWEEN 400 AND 600 THE GRADED WIDTH OF SHOULDER IN CUTS MAY BE DECREASED TO 2 FEET, BUT IN NO CASE SHOULD THE TRAVELED WAY WIDTH BE LESS THAN 18 FEET.
 - USE 3'-3" MINIMUM WHEN SLOPE FROM OUTSIDE EDGE OF SHOULDER TO SUBGRADE IS 3:1. 3'-3" MINIMUM IS NOT REQUIRED WHEN USING SLOPES OF 4:1 WITH COMBINATION OF PAVEMENT AND BASE TWELVE (12) INCHES OR GREATER IN DEPTH.
 - SEE GUARDRAIL STANDARD DRAWINGS FOR TYPICAL GUARDRAIL PLACEMENT.

SPECIAL NOTE
THIS DRAWING IS NOT TO BE UTILIZED FOR NEW DESIGN PROJECTS BEGUN AFTER OCTOBER 1, 2002.

- GENERAL NOTES**
- FOR SPECIFIC CONDITIONS NOT COVERED ON THIS SHEET, REFERENCE SHOULD BE MADE TO "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" 1990.
 - PAGE NUMBERS REFERRED TO ON THIS DRAWING ARE FROM THE ABOVE REFERENCE.
 - REFERENCE SHOULD ALSO BE MADE TO THE AASHTO "ROADSIDE DESIGN GUIDE".
 - THE CURRENT ADT MAY BE USED FOR THE DESIGN SPEED IF THE DESIGN HOURLY VOLUME FOR THE DESIGN YEAR IS LESS THAN 100, OTHERWISE THE DHV SHOULD BE USED.
 - FOR CORNER SIGHT DISTANCE AT RURAL INTERSECTIONS SEE PAGE 432, TABLE V-11.
 - IF NO ABOVE GROUND UTILITIES ARE INVOLVED, MINIMUM RIGHT-OF-WAY SHALL BE TRAVELED WAY PLUS CLEAR ZONE (10 FEET EACH SIDE). FOR URBAN DESIGN SEE PAGE 443-444.
 - IF ABOVE GROUND UTILITIES ARE INVOLVED, MINIMUM RIGHT-OF-WAY SHALL BE SUFFICIENT TO ACCOMMODATE THE UTILITIES OUTSIDE THE CLEAR ZONE.
 - DESIRABLE RIGHT-OF-WAY IS SLOPE LINES PLUS TEN FEET.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

- REV. 5-28-87: CHANGED SUPER-ELEVATION DRAWING REFERENCE.
- REV. 2-2-88: REVISED FOOTNOTE ①.
- REV. 11-9-88: CHANGED SHOULDER SLOPE.
- REV. 9-10-90: REDREW SHEET. REORGANIZED SHEET AND UPDATED TO 1990 POLICY.
- REV. 12-18-91: REVISED FOOTNOTE NOS. ② AND ⑤.
- REV. 12-18-97: CHANGED MINIMUM SHOULDER WIDTH TABLE AND GENERAL NOTE ⑬.
- REV. 3-20-02: ADDED SPECIAL NOTE.
- REV. 3-31-03: CHANGED EFFECTIVE DATE IN SPECIAL NOTE.